

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for ~~the~~ demodulation of radio navigation signals ~~{s(t)} that are~~ transmitted in spread spectrum and ~~comprising that comprise~~ (i) a data channel ~~which that~~ is modulated by a navigation message and (ii) a pilot channel ~~which that~~ is not modulated by ~~a the~~ navigation message, the data channel and the pilot channel being combined into one multiplexing scheme in order to modulate a carrier, ~~this the~~ method comprising:

determining Doppler velocity aid using a discrete navigation system that does not rely only on the radio navigation signals, wherein the discrete navigation system combines information from the radio navigation signals with other information that is independent of the radio navigation signals;

generating a despread data signal by subjecting the signals of the pilot and data channels to despreading processing; and in

demodulating the ~~despreaded despread~~ data signal $\{r_d\}$ in order to obtain the navigation message ~~$\{d(t)\}$~~ ,

wherein the demodulation of the despread data signal $\{r_d\}$ used to obtain the navigation message ~~$\{d(t)\}$~~ is performed with the aid of the carrier $\{r_p\}$ obtained from the despreading processing of the pilot channel, ~~and~~

wherein the despreading processing is performed by code tracking processing, ~~processing~~ combined with at least one of carrier phase tracking processing or carrier frequency tracking processing, ~~in which~~

wherein the code tracking processing is performed using a ~~with the aid of a delay-lock loop~~ delay-lock loop (DLL), and

wherein the carrier tracking ~~processing, processing~~ is performed ~~with the aid of~~ using a frequency-lock loop (FLL) based on the Doppler velocity aid.

2. (Currently Amended) The method as claimed in claim 1, wherein the pilot channel and the data channel ~~of the signal to be demodulated~~ are time-multiplexed.

3. (Currently Amended) The method as claimed in claim 1, wherein the pilot channel and the data channel ~~of the signal to be demodulated~~ are phase-multiplexed.

4. (Cancelled)

5. (Currently Amended) The method as claimed in claim 1, wherein the pilot channel and the data channel ~~of the signal to be demodulated~~ are multiplexed in accordance with a scheme in which the carrier ~~contains~~ includes at least the data channel and the pilot channel ~~of the signal to be demodulated~~.

6-7. (Cancelled)

8. (Currently Amended) The method as claimed in claim 1, wherein ~~it~~the ~~method~~ is applied to ~~the~~at least one of (i) demodulation of satellite navigation signals of ~~the~~-GPS-IIF L5, L2C type, or ~~to the~~(ii) demodulation of satellite navigation signals transmitted by one of a ~~the~~-GALILEO system, ~~or transmitted by~~-ground stations, by modernized GLONASS satellites, ~~or by~~-COMPASS satellites, or QZS satellites.

9. (Currently Amended) A receiver for radio navigation signals that are transmitted in spread spectrum and ~~comprising that comprise~~ (i) a data channel ~~which that~~ is modulated by a navigation message and (ii) a pilot channel ~~which that~~ is not modulated by ~~a~~the navigation message, the receiver comprising:

a despreading and tracking device comprising (i) a spreading code generator ~~which that~~ supplies spreading codes (E_P , L_P , P_P , E_D , L_D , P_D , NH_data , NH_pilot) and (ii) first means for applying the spreading codes to ~~the signals of~~ the pilot channel and the data channel in order to obtain despread pilot and data signals; ~~wherein the receiver comprises~~

a demodulator ~~which that~~ uses the despread pilot signal to demodulate the despread data signal in order to obtain the navigation message; ~~and (d), said receiver comprises~~

second means for estimating or tracking ~~the~~ frequency or phase of the despread pilot channel signal ~~and wherein it~~, wherein the second means comprises a frequency-lock loop (FLL) ~~for tracking that tracks~~ the pilot signal and a delay-lock loop (DLL) ~~which that~~ drives the spreading code generator, wherein the FLL is designed to receive Doppler velocity aid from a navigation system that combines information from the radio navigation signals with other information that is independent of the radio navigation signals.

10-11. (Cancelled)

12. (Currently Amended) The receiver as claimed in claim 9, wherein the ~~frequency-lock loop (FLL)~~ FLL comprises a discriminator of extended arctangent form.

13. (Currently Amended) The receiver as claimed in claim 9, wherein the ~~frequency-lock loop (FLL)~~ FLL comprises one of a first-order filter and a ~~or~~ second-order loop filter, wherein the filter ~~which~~ is adapted to ~~the~~ dynamics of the ~~received radio~~ navigation signals.

14. (Currently Amended) The receiver as claimed in ~~claim 9~~ claim 13, wherein ~~the an~~ output of the filter ~~of the frequency-lock loop (FLL)~~ is coupled to the ~~delay-lock loop (DLL)~~ DLL, the ~~delay-lock loop~~ DLL comprising a zero-order loop filter.

15. (Currently Amended) The receiver as claimed in claim 9, wherein the ~~delay-lock-loop (DLL)~~ DLL comprises a discriminator ~~which~~ that is applied to the ~~despread pilot signals and to the data signals~~, the despread data signals ~~signal~~ being weighted by a coefficient ~~which~~ that depends on ~~the~~ a signal-to-noise spectral density ratio (C/N_0) of the ~~received~~ radio navigation signals.

16. (Cancelled)